

Claim Amendments

1-39. (canceled)

40. (new) A method of making a halogen lamp by hot forming, said method comprising the steps of:

(a) producing a melt of molten glass;

(b) passing said molten glass along a tool to form a glass body having an interior and an exterior;

(c) providing a stream of gas in the interior of said glass body having an oxygen content configured to minimize alkali ions on the interior surface of said glass body to a surface depth sufficient to minimize reactivity with halogen gas and thus minimize darkening by tungsten deposition on the interior surface of said halogen lamp during operation of said halogen lamp;

(d) inserting a filament in said glass body to produce the halogen lamp; and

(e) injecting halogen gas into said glass body to produce a halogen lamp.

41. (new) The method according to Claim 40, wherein said step of providing a stream of gas comprises providing a stream of gas in the interior of said glass body having an oxygen content configured to

minimize alkali ions on the interior surface of said glass body to a surface depth in the range of 150nm to 2000nm.

42. (new) The method according to Claim 41, wherein:

said step of providing a stream of gas comprises providing a stream of gas having an oxygen content in the range of one of:

up to 80 vol.%; and

10 to 30 vol.%;

said step of providing a stream of gas comprises providing a stream of gas containing at least one additional gas in addition to oxygen in a predetermined amount, said at least one additional gas being from the group comprising nitrogen, inert gases, CO₂, SO₂, and H₂O; and

at least one of (A), (B), (C), and (D):

(A) said glass melt has a viscosity in the range of 10⁴ to 10⁵ dPas;

(B) said glass melt has a temperature of more than one of: 1000°C and 1200°C;

(C) said glass melt is one of: a borosilicate glass melt, a neutral glass melt, and an aluminosilicate glass melt;

(D) said glass melt has one of the following compositions

Docket No.: NHL-SCT-22
Serial No.: 09/823,937

(i) and (ii) (in wt.% on an oxide basis):

(i) SiO_2	40-75
Al_2O_3	10-27
B_2O_3	0-15
MgO	0-10
CaO	0-12
SrO	0-12
BaO	0-30
ZnO	0-10
ZrO_2	0-5
$\text{Li}_2\text{O} + \text{Na}_2\text{O} + \text{K}_2\text{O}$	0-7
TiO_2	0-5.5
P_2O_5	0-9.0

as well as optional fining agents and coloring

components in conventional quantities;

(ii) SiO_2	60-80
Al_2O_3	2-10
B_2O_3	5-20
MgO	0-8
CaO	0-12

SrO	0-8
BaO	0-12
ZnO	0-10
ZrO ₂	0-5
Li ₂ O + Na ₂ O + K ₂ O	2-12

as well as optional fining agents and coloring
components in conventional quantities.

43. (new) The halogen lamp made according to the method of
Claim 40.

44. (new) A method of making a halogen lamp by hot forming,
said method comprising the steps of:

- (a) producing a melt of molten glass;
- (b) passing said molten glass along a tool to form a glass body
having an interior and an exterior;
- (c) providing a stream of gas in the interior of said glass body
having an oxygen content configured to treat a portion of the interior
surface of said glass body to a surface depth sufficient to minimize
darkening by tungsten deposition on a portion of the interior surface
of said halogen lamp during operation of said halogen lamp;
- (d) inserting a filament in said glass body to produce the

halogen lamp; and

(e) injecting halogen gas into said glass body to produce a halogen lamp.

45. (new) The method according to Claim 44, wherein said step of providing a stream of gas comprises providing a stream of gas in the interior of said glass body having an oxygen content configured to minimize alkali ions on the interior surface of said glass body to a surface depth in the range of 150nm to 2000nm.

46. (new) The method according to Claim 45, wherein:

said step of providing a stream of gas comprises providing a stream of gas having an oxygen content in the range of one of:

up to 80 vol.%; and

10 to 30 vol.%;

said step of providing a stream of gas comprises providing a stream of gas containing at least one additional gas in addition to oxygen in a predetermined amount, said at least one additional gas being from the group comprising nitrogen, inert gases, CO₂, SO₂, and H₂O; and

at least one of (A), (B), (C), and (D):

(A) said glass melt has a viscosity in the range of 10⁴ to

10^5 dPas;

(B) said glass melt has a temperature of more than one of:
1000°C and 1200°C;

(C) said glass melt is one of: a borosilicate glass melt, a
neutral glass melt, and an aluminosilicate glass melt;

(D) said glass melt has one of the following compositions.

(i) and (ii) (in wt.% on an oxide basis):

(i) SiO_2	40-75
Al_2O_3	10-27
B_2O_3	0-15
MgO	0-10
CaO	0-12
SrO	0-12
BaO	0-30
ZnO	0-10
ZrO_2	0-5
$\text{Li}_2\text{O} + \text{Na}_2\text{O} + \text{K}_2\text{O}$	0-7
TiO_2	0-5.5
P_2O_5	0-9.0

as well as optional fining agents and coloring

components in conventional quantities;

(ii) SiO_2	60-80
Al_2O_3	2-10
B_2O_3	5-20
MgO	0-8
CaO	0-12
SrO	0-8
BaO	0-12
ZnO	0-10
ZrO_2	0-5
$\text{Li}_2\text{O} + \text{Na}_2\text{O} + \text{K}_2\text{O}$	2-12

as well as optional fining agents and coloring

components in conventional quantities.

47. (new) The halogen lamp made according to the method of Claim 44.

48. (new) A method of making a glass object, such as lamp bulbs and lamp bulbs for halogen lamps; ampoules, bottles, vials, cylinder ampoules, pharmaceutical primary packaging, and other containers for medical and pharmaceutical products; reagent containers, test tubes, burets, pipettes, and titration cylinders; tubular

parts for chemical equipment construction; and flat glass, by hot forming, said method comprising the steps of:

- (a) producing a melt of molten glass;
- (b) forming a glass body; and
- (c) providing a stream of gas to contact a portion of a surface of said glass body having an oxygen content configured to minimize alkali ions on the contacted surface portion to a surface depth sufficient to minimize reactivity of the contacted surface portion.

49. (new) The method according to Claim 48, wherein said step of providing a stream of gas comprises providing a stream of gas to contact a portion of a surface of said glass body having an oxygen content configured to minimize alkali ions on the contacted surface portion to a surface depth in the range of 150nm to 2000nm.

50. (new) The method according to Claim 49, wherein said step of providing a stream of gas comprises providing a stream of gas having an oxygen content up to 80 vol.%.

51. (new) The method according to Claim 50, wherein said step of providing a stream of gas comprises providing a stream of gas having an oxygen content in the range of 10 to 30 vol.%.

52. (new) The method according to Claim 51, wherein:

the glass object comprises one of:

flat glass; and

a tube, wherein said contacted surface portion is disposed on the interior of said tube;

said step of providing a stream of gas comprises providing a stream of gas containing at least one additional gas in addition to oxygen in a predetermined amount, said at least one additional gas being from the group comprising nitrogen, inert gases, CO₂, SO₂, and H₂O; and

wherein at least one of (A), (B), (C), and (D):

(A) said glass melt has a viscosity in the range of 10⁴ to 10⁵ dPas;

(B) said glass melt has a temperature of more than one of: 1000°C and 1200°C;

(C) said glass melt is one of: a borosilicate glass melt, a neutral glass melt, and an aluminosilicate glass melt;

(D) said glass melt has one of the following compositions (i) and (ii) (in wt.% on an oxide basis):

(i) SiO ₂	40-75
Al ₂ O ₃	10-27

Docket No.: NHL-SCT-22
Serial No.: 09/823,937

B_2O_3	0-15
MgO	0-10
CaO	0-12
SrO	0-12
BaO	0-30
ZnO	0-10
ZrO_2	0-5
$Li_2O + Na_2O + K_2O$	0-7
TiO_2	0-5.5
P_2O_5	0-9.0

as well as optional fining agents and coloring
components in conventional quantities;

(ii) SiO_2	60-80
Al_2O_3	2-10
B_2O_3	5-20
MgO	0-8
CaO	0-12
SrO	0-8
BaO	0-12
ZnO	0-10

ZrO₂ 0-5

Li₂O + Na₂O + K₂O 2-12

as well as optional fining agents and coloring
components in conventional quantities.

53. (new) The glass object made according to the method of
Claim 48.

54. (new) A method of making a glass object, such as lamp
bulbs and lamp bulbs for halogen lamps; ampoules, bottles, vials,
cylinder ampoules, pharmaceutical primary packaging, and other
containers for medical and pharmaceutical products; reagent
containers, test tubes, burets, pipettes, and titration cylinders; tubular
parts for chemical equipment construction; and flat glass, by hot
forming, said method comprising the steps of:

(a) producing a melt of molten glass;

(b) forming a glass body; and

(c) providing a stream of gas consisting of at least one member
of the group consisting of: oxygen, nitrogen, inert gases, CO₂, SO₂,
and H₂O, to contact a portion of a surface of said glass body having
an oxygen content configured to treat the contacted surface portion to
a surface depth sufficient to minimize reactivity.

55. (new) The method according to Claim 54, wherein said step of providing a stream of gas comprises providing a stream of gas to contact a portion of a surface of said glass body having an oxygen content configured to treat the contacted surface portion to a surface depth in the range of 150nm to 2000nm.

56. (new) The method according to Claim 55, wherein said step of providing a stream of gas comprises providing a stream of gas having an oxygen content up to 80 vol.%.

57. (new) The method according to Claim 56, wherein said step of providing a stream of gas comprises providing a stream of gas having an oxygen content in the range of 10 to 30 vol.%.

58. (new) The method according to Claim 57, wherein:

the glass object comprises one of:

flat glass; and

a tube, wherein said contacted surface portion is disposed on the interior of said tube; and

wherein at least one of (A), (B), (C), and (D):

(A) said glass melt has a viscosity in the range of 10^4 to 10^5 dPas;

(B) said glass melt has a temperature of more than one of:

1000°C and 1200°C;

(C) said glass melt is one of: a borosilicate glass melt, a neutral glass melt, and an aluminosilicate glass melt;

(D) said glass melt has one of the following compositions

(i) and (ii) (in wt.% on an oxide basis):

(i) SiO_2	40-75
Al_2O_3	10-27
B_2O_3	0-15
MgO	0-10
CaO	0-12
SrO	0-12
BaO	0-30
ZnO	0-10
ZrO_2	0-5
$\text{Li}_2\text{O} + \text{Na}_2\text{O} + \text{K}_2\text{O}$	0-7
TiO_2	0-5.5
P_2O_5	0-9.0

as well as optional fining agents and coloring components in conventional quantities;

(ii) SiO_2	60-80
---------------------	-------

Docket No.: NHL-SCT-22
Serial No.: 09/823,937

Al_2O_3	2-10
B_2O_3	5-20
MgO	0-8
CaO	0-12
SrO	0-8
BaO	0-12
ZnO	0-10
ZrO_2	0-5
$\text{Li}_2\text{O} + \text{Na}_2\text{O} + \text{K}_2\text{O}$	2-12

as well as optional fining agents and coloring
components in conventional quantities.

59. (new) The glass object made according to the method of
Claim 54.